IN THE CLAIMS:

Please cancel claim 26 and claims 29-36.

Please amend the following claims:

11. (Amended) A method of exposing a resist on a substrate comprising the steps of:

a) providing the substrate with a film of resist;

b) placing the substrate on a stage; and

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c) sensing the position of the substrate with a displacement sensor, wherein said displacement sensor comprises a differential variable reluctance transducer (DVRT).

22. The method as recited in claim 21, wherein said mask is positioned with respect to said substrate, said method further comprising the step of exposing said resist at a time when said displacement sensor output indicates that position of said mask with respect to said substrate is optimum.

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24. The method as recited in claim 19, further comprising the step of using said displacement sensor output to control mask to wafer misalignment.

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25. The method as recited in claim 11, further comprising the step of using said displacement sensor output to control substrate x, y, z, rotation, and magnification.

28. (Amended) A system for exposing a substrate, comprising a stepper, an X ray source, and a mask, the system further comprising comprising a helium or other low attenuation gas filled beam transport chamber between said X ray source and said mask.

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Please add the following new claims

37. A method of exposing a resist on a substrate comprising the steps of:

a) providing the substrate with a film of resist;

b) placing the substrate on a stage;

c) providing x-ray radiation from a point source;

d) collimating said x-ray radiation;

e) providing a mask for defining exposure of said resist;

f) illuminating said mask with said x-ray radiation after said collimating step (d); and

g) exposing said resist with x-ray radiation passing through said mask.

38. The method as recited in claim 37, wherein said x-ray radiation has a wavelength to provide a structure having a dimension less than 100nm.

39. The method as recited in claim 37, wherein said x-ray radiation is concentrated.

40. The method as recited in claim 37, wherein the substrate comprises a wafer.

41. The method as recited in claim 40, wherein said wafer comprises a semiconductor.

42. The method as recited in claim 37, wherein said mask is spaced from said substrate by a gap, said method further comprising the step of moving said stage to adjust said gap.

43. The method as recited in claim 37, further comprising the step of sensing the position of the substrate with a displacement sensor.

44. The method as recited in claim 44, wherein said displacement sensor comprises a differential variable reluctance transducer (DVRT).

45. The method as recited in claim 44, further comprising the step of using output of said displacement sensor to control said exposing step.

46. The method as recited in claim 46, wherein said mask is positioned with respect to said substrate, said method further comprising the step of exposing said resist at a time when said displacement sensor output indicates that position of said mask with respect to said substrate is optimum.

47. The method as recited in claim 46, wherein said mask is spaced from said substrate by a gap, said method further comprising the step of exposing said resist at a time when said displacement sensor output indicates that said gap is optimum.

48. The method as recited in claim 46, further comprising the step of using said displacement sensor output to control mask to wafer misalignment.

49. The method as recited in claim 46, further comprising the step of using said displacement sensor output to control substrate x, y, z, rotation, and magnification.

50. The system as recited in claim 28, wherein said helium is at atmospheric pressure or at lower pressure.